# GAPP

FY 2002 Information Sheet

The following paragraphs expand on the information contained in the GAPP FY2002 call regarding priorities for new initiatives. Both NOAA and NASA are planning to support new projects based on proposals submitted to this call.

**Predictability in Land Surface Processes**: GAPP seeks to better understand the contributions of land surface processes to the predictability of the water cycle. The most important new contribution will be the effects of heterogeneous vegetation cover and the seasonal cycle of vegetation in soil-vegetation-atmosphere-transfer schemes (SVATS). Continuing efforts will focus on the effects of topography on convective precipitation and horizontal flow within catchments, the role of snow/ice and frozen soil in coupled and uncoupled models, the seasonal cycle of snow and soil moisture, and soil moisture initialization. Improved understanding of these land memory processes will lead to integration of predictability into prediction systems. Modeling studies of land memory processes and data set development to support model development and applications are two priorities.

**Hydrometeorology of Orographic Systems**: Scientific investigations are solicited to examine the orographic influence of the Western Cordillera on cold season precipitation. Studies of thermal and dynamical effects of the mountains in the Western Cordillera on the cold-season hydrological cycle are encouraged. Research elements can include: hydrometeorological processes in the western Cordillera over a range of scales, large-scale flow and mesoscale processes; the effects of topography on ENSO episodes; lake effects on mesoscale circulation, such as those related to the Great Salt Lake; the effect of maritime mountains along the West Coast; and the microphysical processes in mountainous regions.

**Regional CEOP data set initiation and model transferability**: The GEWEX Coordinated Enhanced Observing Period (CEOP) aims to acquire datasets and initiate modeling studies towards the goal of improving model transferability. CEOP will run from 2001-2005, with the data acquisition period from 2001-2003. Specific CEOP research objectives include the role of anomalous heat sources and sinks over land and how they are connected from one area to another. The GAPP contribution to CEOP will center on model transferability, in which models from data rich regions will be applied to data sparse regions and across different climate zones. The purpose of these studies is to increase understanding of the land surface and relevant feedbacks and timescales with respect to the regional and larger-scale climate system. Possible regions may include: a relatively simple geographic region without major topography, such as the Mississippi River basin; the SAGE (Saskatchewan and surrounding Area GEWEX Experiment) region, in the Canadian Prairies; and the La Plata River Basin in South America as well as other Continental Scale Experiments.

**Use of Predictions for Water Resource Management**: Scientific investigations are needed to examine the application of climate forecasts and GAPP products in water resources management. This element will assess the predictability of the hydrological cycle, how to apply hydrologic models at different spatial scales, coupled land-atmosphere modeling for hydrological prediction, biases in the models, improvements in model strategies for prediction, and the transfer of information from coupled land-atmosphere modeling, land data assimilation, and ensemble forecasts to the user community.